

**Technical Report for**

**URS Corporation**

UTC-Metzler/ 3200 Main St. Keokuk, IA

16530531.00201

Accutest Job Number: TC11103

Sampling Date: 06/20/12

**Report to:**

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ATTN: Mr. David Dods

Total number of pages in report: **59**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

*Paul K Canevaro*

**Paul Canevaro**  
Laboratory Director

**Client Service contact: Georgia Jones 713-271-4700**

Certifications: TX (T104704220-12-7) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366)  
LA (85695/04004) OK (211-035)

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Test results relate only to samples analyzed.

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## Sample Summary

**URS Corporation**

**Job No: TC11103**

**UTC-Metzler/ 3200 Main St. Keokuk, IA  
Project No: 16530531.00201**

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
TC11103-1	06/20/12	08:45	06/21/12	AQ	Ground Water	MW-20
TC11103-1F	06/20/12	08:45	06/21/12	AQ	Groundwater Filtered	MW-20
TC11103-2	06/20/12	08:50	06/21/12	AQ	Ground Water	MW-1
TC11103-2F	06/20/12	08:50	06/21/12	AQ	Groundwater Filtered	MW-1
TC11103-3	06/20/12	10:30	06/21/12	AQ	Ground Water	MW-2R
TC11103-3F	06/20/12	10:30	06/21/12	AQ	Groundwater Filtered	MW-2R
TC11103-4	06/20/12	11:40	06/21/12	AQ	Ground Water	MW-3
TC11103-4F	06/20/12	11:40	06/21/12	AQ	Groundwater Filtered	MW-3
TC11103-5	06/20/12	00:00	06/21/12	AQ	Trip Blank Water	TRIP BLANK-003

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** URS Corporation

**Job No** TC11103

**Site:** UTC-Metzler/ 3200 Main St. Keokuk, IA

**Report Date** 7/3/2012 7:09:14 AM

4 Samples 1 Trip Blank were collected on 06/20/2012 and were received intact at Accutest on 06/21/2012 and properly preserved in 1 cooler at 3.6 Deg C These Samples received an Accutest job number of TC11103. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix** AQ

**Batch ID:** VK389

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC11103-1MS, TC11103-1MSD were used as the QC samples indicated.

**Matrix** AQ

**Batch ID:** VX1494

- All samples were analyzed within the recommended method holding time.
- Sample(s) TC11396-6MS, TC11396-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Volatiles by GC By Method RSKSOP-147/175

**Matrix** AQ

**Batch ID:** GSS152

- All samples were analyzed within the recommended method holding time.
- Sample(s) TC10967-2DUP, TC10967-3MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP18001

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC11137-1FMS, TC11137-1FMSD, TC11137-1FSDL were used as the QC samples for metals.

## Wet Chemistry By Method EPA 300/SW846 9056

<b>Matrix</b> AQ	<b>Batch ID:</b> GP19696
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- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC11086-2DUP, TC11086-2MS, TC11086-2MS were used as the QC samples for Nitrogen, Nitrate, Nitrogen, Nitrite, Nitrogen, Nitrite.

<b>Matrix</b> AQ	<b>Batch ID:</b> GP19744
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- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC10984-1DUP, TC10984-1MS, TC10984-1MS were used as the QC samples for Chloride, Sulfate, Sulfate.

## Wet Chemistry By Method EPA 353.2

<b>Matrix</b> AQ	<b>Batch ID:</b> GP19759
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- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC11103-1DUP, TC11103-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

## Wet Chemistry By Method SM 2320B

<b>Matrix</b> AQ	<b>Batch ID:</b> GN43189
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- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC10984-1DUP, TC10984-1MS were used as the QC samples for Alkalinity, Total as CaCO<sub>3</sub>.

## Wet Chemistry By Method SM 4500S+F

<b>Matrix</b> AQ	<b>Batch ID:</b> GN43029
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- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC10984-1DUP were used as the QC samples for Sulfide.

## Wet Chemistry By Method SM5310B/9060A

<b>Matrix</b> AQ	<b>Batch ID:</b> GP19713
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- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC11029-1DUP, TC11029-1MS were used as the QC samples for Total Organic Carbon.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

**Sample Results**

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**Report of Analysis**

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## Report of Analysis

Client Sample ID: MW-20	Date Sampled: 06/20/12
Lab Sample ID: TC11103-1	Date Received: 06/21/12
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K08527.D	1	06/28/12	EM	n/a	n/a	VK389
Run #2	X0083238.D	1	06/29/12	CF	n/a	n/a	VX1494

Run #	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

## SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.050	0.010	mg/l	
71-43-2	Benzene	ND	0.0010	0.00025	mg/l	
75-27-4	Bromodichloromethane	ND	0.0010	0.00025	mg/l	
75-25-2	Bromoform	ND	0.0010	0.00035	mg/l	
71-36-3	n-Butyl Alcohol	ND	0.050	0.033	mg/l	
108-90-7	Chlorobenzene	ND	0.0010	0.00022	mg/l	
75-00-3	Chloroethane	ND	0.0010	0.00044	mg/l	
67-66-3	Chloroform	ND	0.0010	0.00020	mg/l	
75-15-0	Carbon disulfide	ND	0.0010	0.00036	mg/l	
56-23-5	Carbon tetrachloride	ND	0.0010	0.00036	mg/l	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00029	mg/l	
75-35-4	1,1-Dichloroethylene	ND	0.0010	0.00040	mg/l	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00020	mg/l	
78-87-5	1,2-Dichloropropane	ND	0.0010	0.00025	mg/l	
124-48-1	Dibromochloromethane	ND	0.0010	0.00029	mg/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.0010	0.00024	mg/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0010	0.00020	mg/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.0010	0.00030	mg/l	
540-59-0	1,2-Dichloroethene (total)	ND	0.0020	0.00054	mg/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0010	0.00021	mg/l	
100-41-4	Ethylbenzene	ND	0.0010	0.00025	mg/l	
110-54-3	Hexane	ND <sup>a</sup>	0.0020	0.00066	mg/l	
591-78-6	2-Hexanone	ND	0.010	0.0024	mg/l	
78-83-1	Isobutyl alcohol	ND	0.050	0.023	mg/l	
108-10-1	4-Methyl-2-pentanone	ND	0.010	0.0019	mg/l	
74-83-9	Methyl bromide	ND	0.0010	0.00031	mg/l	
74-87-3	Methyl chloride	ND	0.0010	0.00027	mg/l	
75-09-2	Methylene chloride	ND	0.0050	0.0010	mg/l	
78-93-3	Methyl ethyl ketone	ND	0.010	0.0018	mg/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00028	mg/l	
100-42-5	Styrene	ND	0.0010	0.00022	mg/l	
71-55-6	1,1,1-Trichloroethane	ND	0.0010	0.00031	mg/l	

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

## Report of Analysis

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3

<b>Client Sample ID:</b> MW-20 <b>Lab Sample ID:</b> TC11103-1 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8260B <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
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SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0010	0.00038	mg/l	
79-00-5	1,1,2-Trichloroethane	ND	0.0010	0.00036	mg/l	
127-18-4	Tetrachloroethylene	ND	0.0010	0.00033	mg/l	
108-88-3	Toluene	ND	0.0010	0.00026	mg/l	
79-01-6	Trichloroethylene	ND	0.0010	0.00036	mg/l	
75-01-4	Vinyl chloride	ND	0.0010	0.00040	mg/l	
1330-20-7	Xylene (total)	ND	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%	101%	79-122%
17060-07-0	1,2-Dichloroethane-D4	100%	105%	75-121%
2037-26-5	Toluene-D8	103%	93%	87-119%
460-00-4	4-Bromofluorobenzene	116%	90%	80-133%

(a) Result is from Run# 2

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

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<b>Client Sample ID:</b> MW-20 <b>Lab Sample ID:</b> TC11103-1 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> RSKSOP-147/175 <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS003093.D	1	06/25/12	FI	n/a	n/a	GSS152
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.0746	0.00050	0.00030	mg/l	
74-85-1	Ethene	ND	0.0010	0.00050	mg/l	
74-84-0	Ethane	ND	0.0010	0.00050	mg/l	

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-20	<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-1	<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	490	5.0	mg/l	1	06/27/12 10:00	RA	SM 2320B
Chloride	56.1	2.5	mg/l	5	06/25/12 17:24	ES	EPA 300/SW846 9056
Nitrogen, Nitrate	< 0.50	0.50	mg/l	1	06/21/12 18:19	ES	EPA 300/SW846 9056
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	06/26/12 12:27	CV	EPA 353.2
Nitrogen, Nitrite	< 0.50	0.50	mg/l	1	06/21/12 18:19	ES	EPA 300/SW846 9056
Sulfate	67.9	2.5	mg/l	5	06/25/12 17:24	ES	EPA 300/SW846 9056
Sulfide	< 0.20	0.20	mg/l	1	06/22/12 11:00	SS	SM 4500S+ F
Total Organic Carbon	2.3	1.0	mg/l	1	06/22/12 20:16	KD	SM5310B/9060A

RL = Reporting Limit

## Report of Analysis

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<b>Client Sample ID:</b> MW-20		<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-1F		<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Groundwater Filtered		<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA		

### Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	728	100	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	829	15	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA7017

(2) Prep QC Batch: MP18001

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RL = Reporting Limit



## Report of Analysis

<b>Client Sample ID:</b> MW-1 <b>Lab Sample ID:</b> TC11103-2 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8260B <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
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SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0010	0.00038	mg/l	
79-00-5	1,1,2-Trichloroethane	ND	0.0010	0.00036	mg/l	
127-18-4	Tetrachloroethylene	ND	0.0010	0.00033	mg/l	
108-88-3	Toluene	ND	0.0010	0.00026	mg/l	
79-01-6	Trichloroethylene	ND	0.0010	0.00036	mg/l	
75-01-4	Vinyl chloride	0.00042	0.0010	0.00040	mg/l	J
1330-20-7	Xylene (total)	ND	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		79-122%
17060-07-0	1,2-Dichloroethane-D4	102%		75-121%
2037-26-5	Toluene-D8	103%		87-119%
460-00-4	4-Bromofluorobenzene	117%		80-133%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-1	<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-2	<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> RSKSOP-147/175	
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS003095.D	1	06/25/12	FI	n/a	n/a	GSS152
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.0894	0.00050	0.00030	mg/l	
74-85-1	Ethene	ND	0.0010	0.00050	mg/l	
74-84-0	Ethane	ND	0.0010	0.00050	mg/l	

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-1	<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-2	<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	620	5.0	mg/l	1	06/27/12 10:00	RA	SM 2320B
Chloride	248	10	mg/l	20	06/25/12 17:41	ES	EPA 300/SW846 9056
Nitrogen, Nitrate	< 0.50	0.50	mg/l	1	06/21/12 18:36	ES	EPA 300/SW846 9056
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	06/26/12 12:31	CV	EPA 353.2
Nitrogen, Nitrite	< 0.50	0.50	mg/l	1	06/21/12 18:36	ES	EPA 300/SW846 9056
Sulfate	35.8	1.0	mg/l	2	06/25/12 17:58	ES	EPA 300/SW846 9056
Sulfide	< 0.20	0.20	mg/l	1	06/22/12 11:00	SS	SM 4500S+ F
Total Organic Carbon	6.5	1.0	mg/l	1	06/22/12 20:30	KD	SM5310B/9060A

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-1		<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-2F		<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Groundwater Filtered		<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA		

### Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	5900	100	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	3660	15	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA7017

(2) Prep QC Batch: MP18001

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RL = Reporting Limit



## Report of Analysis

<b>Client Sample ID:</b> MW-2R <b>Lab Sample ID:</b> TC11103-3 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8260B <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
--	---

SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0010	0.00038	mg/l	
79-00-5	1,1,2-Trichloroethane	ND	0.0010	0.00036	mg/l	
127-18-4	Tetrachloroethylene	ND	0.0010	0.00033	mg/l	
108-88-3	Toluene	ND	0.0010	0.00026	mg/l	
79-01-6	Trichloroethylene	ND	0.0010	0.00036	mg/l	
75-01-4	Vinyl chloride	ND	0.0010	0.00040	mg/l	
1330-20-7	Xylene (total)	ND	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		79-122%
17060-07-0	1,2-Dichloroethane-D4	102%		75-121%
2037-26-5	Toluene-D8	105%		87-119%
460-00-4	4-Bromofluorobenzene	116%		80-133%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

3.5  
3

<b>Client Sample ID:</b> MW-2R <b>Lab Sample ID:</b> TC11103-3 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> RSKSOP-147/175 <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS003096.D	1	06/25/12	FI	n/a	n/a	GSS152
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.0797	0.00050	0.00030	mg/l	
74-85-1	Ethene	ND	0.0010	0.00050	mg/l	
74-84-0	Ethane	ND	0.0010	0.00050	mg/l	

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-2R	<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-3	<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	

### General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	405	5.0	mg/l	1	06/27/12 10:00	RA	SM 2320B
Chloride	51.9	2.5	mg/l	5	06/25/12 18:15	ES	EPA 300/SW846 9056
Nitrogen, Nitrate	< 0.50	0.50	mg/l	1	06/21/12 18:53	ES	EPA 300/SW846 9056
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	06/26/12 12:32	CV	EPA 353.2
Nitrogen, Nitrite	< 0.50	0.50	mg/l	1	06/21/12 18:53	ES	EPA 300/SW846 9056
Sulfate	65.4	2.5	mg/l	5	06/25/12 18:15	ES	EPA 300/SW846 9056
Sulfide	< 0.20	0.20	mg/l	1	06/22/12 11:00	SS	SM 4500S+ F
Total Organic Carbon	5.1	1.0	mg/l	1	06/22/12 21:26	KD	SM5310B/9060A

RL = Reporting Limit

## Report of Analysis

3.6  
3

<b>Client Sample ID:</b> MW-2R		<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-3F		<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Groundwater Filtered		<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA		

**Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	248	100	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	1500	15	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA7017

(2) Prep QC Batch: MP18001

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RL = Reporting Limit

## Report of Analysis

Client Sample ID: MW-3	Date Sampled: 06/20/12
Lab Sample ID: TC11103-4	Date Received: 06/21/12
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	K08535.D	1	06/28/12	EM	n/a	n/a	VK389
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

## SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.050	0.010	mg/l	
71-43-2	Benzene	ND	0.0010	0.00025	mg/l	
75-27-4	Bromodichloromethane	ND	0.0010	0.00025	mg/l	
75-25-2	Bromoform	ND	0.0010	0.00035	mg/l	
71-36-3	n-Butyl Alcohol	ND	0.050	0.033	mg/l	
108-90-7	Chlorobenzene	ND	0.0010	0.00022	mg/l	
75-00-3	Chloroethane	ND	0.0010	0.00044	mg/l	
67-66-3	Chloroform	ND	0.0010	0.00020	mg/l	
75-15-0	Carbon disulfide	ND	0.0010	0.00036	mg/l	
56-23-5	Carbon tetrachloride	ND	0.0010	0.00036	mg/l	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00029	mg/l	
75-35-4	1,1-Dichloroethylene	ND	0.0010	0.00040	mg/l	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00020	mg/l	
78-87-5	1,2-Dichloropropane	ND	0.0010	0.00025	mg/l	
124-48-1	Dibromochloromethane	ND	0.0010	0.00029	mg/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.0010	0.00024	mg/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0010	0.00020	mg/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.0010	0.00030	mg/l	
540-59-0	1,2-Dichloroethene (total)	ND	0.0020	0.00054	mg/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0010	0.00021	mg/l	
100-41-4	Ethylbenzene	ND	0.0010	0.00025	mg/l	
110-54-3	Hexane	ND	0.0020	0.00066	mg/l	
591-78-6	2-Hexanone	ND	0.010	0.0024	mg/l	
78-83-1	Isobutyl alcohol	ND	0.050	0.023	mg/l	
108-10-1	4-Methyl-2-pentanone	ND	0.010	0.0019	mg/l	
74-83-9	Methyl bromide	ND	0.0010	0.00031	mg/l	
74-87-3	Methyl chloride	ND	0.0010	0.00027	mg/l	
75-09-2	Methylene chloride	0.0024	0.0050	0.0010	mg/l	J
78-93-3	Methyl ethyl ketone	ND	0.010	0.0018	mg/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00028	mg/l	
100-42-5	Styrene	ND	0.0010	0.00022	mg/l	
71-55-6	1,1,1-Trichloroethane	ND	0.0010	0.00031	mg/l	

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-3 <b>Lab Sample ID:</b> TC11103-4 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> SW846 8260B <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
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SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0010	0.00038	mg/l	
79-00-5	1,1,2-Trichloroethane	ND	0.0010	0.00036	mg/l	
127-18-4	Tetrachloroethylene	ND	0.0010	0.00033	mg/l	
108-88-3	Toluene	ND	0.0010	0.00026	mg/l	
79-01-6	Trichloroethylene	ND	0.0010	0.00036	mg/l	
75-01-4	Vinyl chloride	ND	0.0010	0.00040	mg/l	
1330-20-7	Xylene (total)	ND	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		79-122%
17060-07-0	1,2-Dichloroethane-D4	102%		75-121%
2037-26-5	Toluene-D8	103%		87-119%
460-00-4	4-Bromofluorobenzene	114%		80-133%

(a) Sample vial contains headspace.

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-3 <b>Lab Sample ID:</b> TC11103-4 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> RSKSOP-147/175 <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS003097.D	1	06/25/12	FI	n/a	n/a	GSS152
Run #2	SS003098.D	2	06/25/12	FI	n/a	n/a	GSS152

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	0.323 <sup>a</sup>	0.0010	0.00060	mg/l	
74-85-1	Ethene	ND	0.0010	0.00050	mg/l	
74-84-0	Ethane	ND	0.0010	0.00050	mg/l	

(a) Result is from Run# 2

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> MW-3	<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-4	<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3	355	5.0	mg/l	1	06/27/12 10:00	RA	SM 2320B
Chloride	163	10	mg/l	20	06/25/12 18:32	ES	EPA 300/SW846 9056
Nitrogen, Nitrate	< 0.50	0.50	mg/l	1	06/21/12 19:10	ES	EPA 300/SW846 9056
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	06/26/12 12:34	CV	EPA 353.2
Nitrogen, Nitrite	< 0.50	0.50	mg/l	1	06/21/12 19:10	ES	EPA 300/SW846 9056
Sulfate	37.9	1.0	mg/l	2	06/25/12 18:49	ES	EPA 300/SW846 9056
Sulfide	< 0.20	0.20	mg/l	1	06/22/12 11:00	SS	SM 4500S+ F
Total Organic Carbon	3.1	1.0	mg/l	1	06/22/12 21:12	KD	SM5310B/9060A

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-3	<b>Date Sampled:</b> 06/20/12
<b>Lab Sample ID:</b> TC11103-4F	<b>Date Received:</b> 06/21/12
<b>Matrix:</b> AQ - Groundwater Filtered	<b>Percent Solids:</b> n/a
<b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	

### Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	3930	100	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>
Manganese	6190	15	ug/l	1	06/25/12	06/27/12 EG	SW846 6010B <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA7017

(2) Prep QC Batch: MP18001

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RL = Reporting Limit

## Report of Analysis

Client Sample ID:	TRIP BLANK-003	Date Sampled:	06/20/12
Lab Sample ID:	TC11103-5	Date Received:	06/21/12
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	UTC-Metzler/ 3200 Main St. Keokuk, IA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K08532.D	1	06/28/12	EM	n/a	n/a	VK389
Run #2	X0083232.D	1	06/29/12	CF	n/a	n/a	VX1494

Run #	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

## SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.050	0.010	mg/l	
71-43-2	Benzene	ND	0.0010	0.00025	mg/l	
75-27-4	Bromodichloromethane	ND	0.0010	0.00025	mg/l	
75-25-2	Bromoform	ND	0.0010	0.00035	mg/l	
71-36-3	n-Butyl Alcohol	ND	0.050	0.033	mg/l	
108-90-7	Chlorobenzene	ND	0.0010	0.00022	mg/l	
75-00-3	Chloroethane	ND	0.0010	0.00044	mg/l	
67-66-3	Chloroform	ND	0.0010	0.00020	mg/l	
75-15-0	Carbon disulfide	ND	0.0010	0.00036	mg/l	
56-23-5	Carbon tetrachloride	ND	0.0010	0.00036	mg/l	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00029	mg/l	
75-35-4	1,1-Dichloroethylene	ND	0.0010	0.00040	mg/l	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00020	mg/l	
78-87-5	1,2-Dichloropropane	ND	0.0010	0.00025	mg/l	
124-48-1	Dibromochloromethane	ND	0.0010	0.00029	mg/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.0010	0.00024	mg/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0010	0.00020	mg/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.0010	0.00030	mg/l	
540-59-0	1,2-Dichloroethene (total)	ND	0.0020	0.00054	mg/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0010	0.00021	mg/l	
100-41-4	Ethylbenzene	ND	0.0010	0.00025	mg/l	
110-54-3	Hexane	ND <sup>a</sup>	0.0020	0.00066	mg/l	
591-78-6	2-Hexanone	ND	0.010	0.0024	mg/l	
78-83-1	Isobutyl alcohol	ND	0.050	0.023	mg/l	
108-10-1	4-Methyl-2-pentanone	ND	0.010	0.0019	mg/l	
74-83-9	Methyl bromide	ND	0.0010	0.00031	mg/l	
74-87-3	Methyl chloride	ND	0.0010	0.00027	mg/l	
75-09-2	Methylene chloride	ND	0.0050	0.0010	mg/l	
78-93-3	Methyl ethyl ketone	ND	0.010	0.0018	mg/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00028	mg/l	
100-42-5	Styrene	ND	0.0010	0.00022	mg/l	
71-55-6	1,1,1-Trichloroethane	ND	0.0010	0.00031	mg/l	

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

## Report of Analysis

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3

<b>Client Sample ID:</b> TRIP BLANK-003 <b>Lab Sample ID:</b> TC11103-5 <b>Matrix:</b> AQ - Trip Blank Water <b>Method:</b> SW846 8260B <b>Project:</b> UTC-Metzler/ 3200 Main St. Keokuk, IA	<b>Date Sampled:</b> 06/20/12 <b>Date Received:</b> 06/21/12 <b>Percent Solids:</b> n/a
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SW-846 8260B

CAS No.	Compound	Result	RL	MDL	Units	Q
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0010	0.00038	mg/l	
79-00-5	1,1,2-Trichloroethane	ND	0.0010	0.00036	mg/l	
127-18-4	Tetrachloroethylene	ND	0.0010	0.00033	mg/l	
108-88-3	Toluene	ND	0.0010	0.00026	mg/l	
79-01-6	Trichloroethylene	ND	0.0010	0.00036	mg/l	
75-01-4	Vinyl chloride	ND	0.0010	0.00040	mg/l	
1330-20-7	Xylene (total)	ND	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%	95%	79-122%
17060-07-0	1,2-Dichloroethane-D4	101%	102%	75-121%
2037-26-5	Toluene-D8	103%	93%	87-119%
460-00-4	4-Bromofluorobenzene	116%	90%	80-133%

(a) Result is from Run# 2

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

**Misc. Forms**

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**Custody Documents and Other Forms**

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**Includes the following where applicable:**

- Chain of Custody



**Accutest Job Number:** TC11103      **Client:** URS      **Project:** 3200 MAIN ST UTC  
**Date / Time Received:** 6/21/2012      **Delivery Method:** \_\_\_\_\_      **Airbill #'s:** 535599232720  
**No. Coolers:** 1      **Therm ID:** IRGUN5;      **Temp Adjustment Factor:** -0.4;  
**Cooler Temps (Initial/Adjusted):** #1: (4/3.6);

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	_____	
3. Cooler media:	Ice (Bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>			<u>WTB STB</u>	
1. Trip Blank present / cooler:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
4. VOCs headspace free:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

4.1  
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Job #: TC11103

Date / Time Received: 6/21/2012 9:25:00 AM

Initials: EC

Client: URS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC11103-1	500ml	1	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-1	500ml	2	M2M	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-1	250ml	3	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-1	250ml	4	1JJ	NaOH+ZnAc	pH > 12	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	5	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	6	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	11	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-1	40ml	12	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-2	500ml	1	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-2	500ml	2	M2M	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-2	250ml	3	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-2	250ml	4	1JJ	NaOH+ZnAc	pH > 12	IRGUN5	4	-0.4	3.6
1	TC11103-2	40ml	5	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-2	40ml	6	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-2	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-2	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-2	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-2	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-2	40ml	11	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6

4.1  
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**TC11103: Chain of Custody**

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Job #: TC11103

Date / Time Received: 6/21/2012 9:25:00 AM

Initials: EC

Client: URS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC11103-2	40ml	12	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-3	500ml	1	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-3	500ml	2	M2M	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-3	250ml	3	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-3	250ml	4	1JJ	NaOH+ZnAc	pH > 12	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	5	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	6	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	11	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-3	40ml	12	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-4	500ml	1	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-4	500ml	2	M2M	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-4	250ml	3	3J	N/P	Note #2 - Preservative check not applicable.	IRGUN5	4	-0.4	3.6
1	TC11103-4	250ml	4	1JJ	NaOH+ZnAc	pH > 12	IRGUN5	4	-0.4	3.6
1	TC11103-4	40ml	5	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-4	40ml	6	1JJ	HCL	pH < 2	IRGUN5	4	-0.4	3.6
1	TC11103-4	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-4	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-4	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-4	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6

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**TC11103: Chain of Custody**

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Job #: TC11103

Date / Time Received: 6/21/2012 9:25:00 AM

Initials: EC

Client: URS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC11103-4	40ml	11	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-4	40ml	12	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-5	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6
1	TC11103-5	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	4	-0.4	3.6

4.1  
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**TC11103: Chain of Custody**  
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## GC/MS Volatiles

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## QC Data Summaries

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### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Method Blank Summary

Job Number: TC11103  
 Account: URSKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK389-MB	K08526.D	1	06/28/12	EM	n/a	n/a	VK389

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-2, TC11103-3, TC11103-4, TC11103-5

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	10	ug/l	
71-43-2	Benzene	ND	1.0	0.25	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.25	ug/l	
75-25-2	Bromoform	ND	1.0	0.35	ug/l	
71-36-3	n-Butyl Alcohol	ND	50	33	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.22	ug/l	
75-00-3	Chloroethane	ND	1.0	0.44	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
75-15-0	Carbon disulfide	ND	1.0	0.36	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.36	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.29	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.40	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.25	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.29	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.30	ug/l	
540-59-0	1,2-Dichloroethene (total)	ND	2.0	0.54	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
110-54-3	Hexane	0.72	2.0	0.66	ug/l	J
591-78-6	2-Hexanone	ND	10	2.4	ug/l	
78-83-1	Isobutyl alcohol	ND	50	23	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.9	ug/l	
74-83-9	Methyl bromide	ND	1.0	0.31	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.27	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.28	ug/l	
100-42-5	Styrene	ND	1.0	0.22	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.31	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.38	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.36	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.33	ug/l	
108-88-3	Toluene	ND	1.0	0.26	ug/l	

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## Method Blank Summary

Job Number: TC11103  
Account: URKSOP URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK389-MB	K08526.D	1	06/28/12	EM	n/a	n/a	VK389

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-2, TC11103-3, TC11103-4, TC11103-5

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethylene	ND	1.0	0.36	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.40	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	105%	79-122%
17060-07-0	1,2-Dichloroethane-D4	99%	75-121%
2037-26-5	Toluene-D8	104%	87-119%
460-00-4	4-Bromofluorobenzene	114%	80-133%

# Method Blank Summary

Job Number: TC11103  
Account: URKSOP URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX1494-MB	X0083226.D	1	06/29/12	CF	n/a	n/a	VX1494

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-5

CAS No.	Compound	Result	RL	MDL	Units	Q
110-54-3	Hexane	ND	2.0	0.66	ug/l	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	95%	79-122%
17060-07-0	1,2-Dichloroethane-D4	106%	75-121%
2037-26-5	Toluene-D8	92%	87-119%
460-00-4	4-Bromofluorobenzene	90%	80-133%

# Blank Spike Summary

Job Number: TC11103  
 Account: URSKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK389-BS	K08524.D	1	06/28/12	EM	n/a	n/a	VK389

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-2, TC11103-3, TC11103-4, TC11103-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	109	87	62-124
71-43-2	Benzene	25	22.1	88	76-118
75-27-4	Bromodichloromethane	25	22.7	91	68-107
75-25-2	Bromoform	25	21.9	88	64-103
71-36-3	n-Butyl Alcohol	250	280	112	40-141
108-90-7	Chlorobenzene	25	23.1	92	74-111
75-00-3	Chloroethane	25	26.7	107	75-135
67-66-3	Chloroform	25	22.9	92	75-117
75-15-0	Carbon disulfide	25	23.4	94	57-126
56-23-5	Carbon tetrachloride	25	23.3	93	75-125
75-34-3	1,1-Dichloroethane	25	22.7	91	76-121
75-35-4	1,1-Dichloroethylene	25	23.4	94	71-128
107-06-2	1,2-Dichloroethane	25	22.7	91	70-111
78-87-5	1,2-Dichloropropane	25	22.5	90	71-113
124-48-1	Dibromochloromethane	25	22.5	90	69-104
156-59-2	cis-1,2-Dichloroethylene	25	22.5	90	68-113
10061-01-5	cis-1,3-Dichloropropene	25	22.6	90	71-111
156-60-5	trans-1,2-Dichloroethylene	25	22.4	90	70-125
540-59-0	1,2-Dichloroethene (total)	50	44.8	90	71-117
10061-02-6	trans-1,3-Dichloropropene	25	24.5	98	75-111
100-41-4	Ethylbenzene	25	22.8	91	75-112
110-54-3	Hexane	25	24.9	100	68-130
591-78-6	2-Hexanone	125	107	86	60-113
78-83-1	Isobutyl alcohol	250	261	104	70-130
108-10-1	4-Methyl-2-pentanone	125	106	85	63-115
74-83-9	Methyl bromide	25	25.7	103	59-132
74-87-3	Methyl chloride	25	25.5	102	56-150
75-09-2	Methylene chloride	25	21.7	87	70-113
78-93-3	Methyl ethyl ketone	125	109	87	62-117
1634-04-4	Methyl Tert Butyl Ether	25	22.1	88	65-113
100-42-5	Styrene	25	22.9	92	76-110
71-55-6	1,1,1-Trichloroethane	25	23.8	95	76-125
79-34-5	1,1,2,2-Tetrachloroethane	25	22.8	91	67-110
79-00-5	1,1,2-Trichloroethane	25	23.3	93	69-107
127-18-4	Tetrachloroethylene	25	24.1	96	77-120
108-88-3	Toluene	25	22.6	90	77-114

\* = Outside of Control Limits.

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# Blank Spike Summary

Job Number: TC11103  
 Account: URKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK389-BS	K08524.D	1	06/28/12	EM	n/a	n/a	VK389

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-2, TC11103-3, TC11103-4, TC11103-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
79-01-6	Trichloroethylene	25	23.4	94	74-117
75-01-4	Vinyl chloride	25	23.3	93	64-121
1330-20-7	Xylene (total)	75	68.0	91	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	79-122%
17060-07-0	1,2-Dichloroethane-D4	100%	75-121%
2037-26-5	Toluene-D8	105%	87-119%
460-00-4	4-Bromofluorobenzene	117%	80-133%

\* = Outside of Control Limits.

5.2.1  
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# Blank Spike Summary

Job Number: TC11103  
 Account: URKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX1494-BS	X0083216.D	1	06/29/12	CF	n/a	n/a	VX1494

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
110-54-3	Hexane	25	28.4	114	68-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	96%	79-122%
17060-07-0	1,2-Dichloroethane-D4	109%	75-121%
2037-26-5	Toluene-D8	96%	87-119%
460-00-4	4-Bromofluorobenzene	90%	80-133%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC11103  
 Account: URSKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC11103-1MS	K08528.D	1	06/28/12	EM	n/a	n/a	VK389
TC11103-1MSD	K08529.D	1	06/28/12	EM	n/a	n/a	VK389
TC11103-1	K08527.D	1	06/28/12	EM	n/a	n/a	VK389

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-2, TC11103-3, TC11103-4, TC11103-5

CAS No.	Compound	TC11103-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		125	96.0	77	97.5	78	2	62-124/21
71-43-2	Benzene	ND		25	22.2	89	21.9	88	1	76-118/16
75-27-4	Bromodichloromethane	ND		25	22.6	90	22.3	89	1	68-107/12
75-25-2	Bromoform	ND		25	20.8	83	20.8	83	0	64-103/14
71-36-3	n-Butyl Alcohol	ND		250	206	82	241	96	16	40-141/19
108-90-7	Chlorobenzene	ND		25	22.6	90	22.4	90	1	74-111/11
75-00-3	Chloroethane	ND		25	28.1	112	27.6	110	2	75-135/15
67-66-3	Chloroform	ND		25	22.9	92	22.9	92	0	75-117/12
75-15-0	Carbon disulfide	ND		25	23.9	96	24.2	97	1	57-126/13
56-23-5	Carbon tetrachloride	ND		25	23.4	94	22.6	90	3	75-125/12
75-34-3	1,1-Dichloroethane	ND		25	22.9	92	22.8	91	0	76-121/13
75-35-4	1,1-Dichloroethylene	ND		25	23.6	94	23.0	92	3	71-128/19
107-06-2	1,2-Dichloroethane	ND		25	22.6	90	22.5	90	0	70-111/14
78-87-5	1,2-Dichloropropane	ND		25	22.6	90	22.1	88	2	71-113/12
124-48-1	Dibromochloromethane	ND		25	22.1	88	22.0	88	0	69-104/12
156-59-2	cis-1,2-Dichloroethylene	ND		25	22.6	90	22.5	90	0	68-113/13
10061-01-5	cis-1,3-Dichloropropene	ND		25	22.1	88	22.2	89	0	71-111/12
156-60-5	trans-1,2-Dichloroethylene	ND		25	22.6	90	22.2	89	2	70-125/14
540-59-0	1,2-Dichloroethene (total)	ND		50	45.2	90	44.7	89	1	71-117/12
10061-02-6	trans-1,3-Dichloropropene	ND		25	24.1	96	23.7	95	2	75-111/12
100-41-4	Ethylbenzene	ND		25	22.7	91	22.3	89	2	75-112/12
110-54-3	Hexane	0.67	J	25	24.4	95	24.0	93	2	68-130/12
591-78-6	2-Hexanone	ND		125	94.9	76	95.0	76	0	60-113/18
78-83-1	Isobutyl alcohol	ND		250	224	90	224	90	0	70-130/30
108-10-1	4-Methyl-2-pentanone	ND		125	97.7	78	96.4	77	1	63-115/21
74-83-9	Methyl bromide	ND		25	27.2	109	26.5	106	3	59-132/15
74-87-3	Methyl chloride	ND		25	27.6	110	26.7	107	3	56-150/17
75-09-2	Methylene chloride	ND		25	21.6	86	21.4	86	1	70-113/13
78-93-3	Methyl ethyl ketone	ND		125	97.7	78	99.0	79	1	62-117/21
1634-04-4	Methyl Tert Butyl Ether	ND		25	21.5	86	21.7	87	1	65-113/13
100-42-5	Styrene	ND		25	22.5	90	22.2	89	1	76-110/11
71-55-6	1,1,1-Trichloroethane	ND		25	24.3	97	23.6	94	3	76-125/11
79-34-5	1,1,2,2-Tetrachloroethane	ND		25	21.6	86	21.4	86	1	67-110/20
79-00-5	1,1,2-Trichloroethane	ND		25	22.5	90	22.3	89	1	69-107/14
127-18-4	Tetrachloroethylene	ND		25	24.1	96	23.2	93	4	77-120/13
108-88-3	Toluene	ND		25	22.3	89	22.0	88	1	77-114/12

\* = Outside of Control Limits.

5.3.1  
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# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC11103  
 Account: URSKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC11103-1MS	K08528.D	1	06/28/12	EM	n/a	n/a	VK389
TC11103-1MSD	K08529.D	1	06/28/12	EM	n/a	n/a	VK389
TC11103-1	K08527.D	1	06/28/12	EM	n/a	n/a	VK389

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-2, TC11103-3, TC11103-4, TC11103-5

CAS No.	Compound	TC11103-1 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
79-01-6	Trichloroethylene	ND	25	23.6	94	22.9	92	3	74-117/12
75-01-4	Vinyl chloride	ND	25	24.5	98	23.6	94	4	64-121/19
1330-20-7	Xylene (total)	ND	75	67.9	91	66.8	89	2	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC11103-1	Limits
1868-53-7	Dibromofluoromethane	106%	105%	104%	79-122%
17060-07-0	1,2-Dichloroethane-D4	100%	101%	100%	75-121%
2037-26-5	Toluene-D8	105%	104%	103%	87-119%
460-00-4	4-Bromofluorobenzene	116%	117%	116%	80-133%

\* = Outside of Control Limits.

5.3.1  
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# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC11103  
 Account: URSKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC11396-6MS	X0083228.D	5	06/29/12	CF	n/a	n/a	VX1494
TC11396-6MSD	X0083229.D	5	06/29/12	CF	n/a	n/a	VX1494
TC11396-6	X0083239.D	1	06/29/12	CF	n/a	n/a	VX1494
TC11396-6	X0083227.D	5	06/29/12	CF	n/a	n/a	VX1494

The QC reported here applies to the following samples:

Method: SW846 8260B

TC11103-1, TC11103-5

CAS No.	Compound	TC11396-6 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
110-54-3	Hexane	2.0 U	125	137	110	121	97	12	68-130/12

CAS No.	Surrogate Recoveries	MS	MSD	TC11396-6	TC11396-6	Limits
1868-53-7	Dibromofluoromethane	96%	94%	95%	96%	79-122%
17060-07-0	1,2-Dichloroethane-D4	97%	101%	104%	102%	75-121%
2037-26-5	Toluene-D8	94%	96%	91%	95%	87-119%
460-00-4	4-Bromofluorobenzene	91%	91%	90%	91%	80-133%

\* = Outside of Control Limits.

5.3.2  
 5

## GC Volatiles

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## QC Data Summaries

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**Includes the following where applicable:**

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Method Blank Summary

Job Number: TC11103  
Account: URKSOP URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GSS152-MB	SS003079.D	1	06/25/12	FI	n/a	n/a	GSS152

The QC reported here applies to the following samples:

Method: RSKSOP-147/175

TC11103-1, TC11103-2, TC11103-3, TC11103-4

CAS No.	Compound	Result	RL	MDL	Units	Q
74-82-8	Methane	ND	0.50	0.30	ug/l	
74-85-1	Ethene	ND	1.0	0.50	ug/l	
74-84-0	Ethane	ND	1.0	0.50	ug/l	

# Blank Spike Summary

Job Number: TC11103  
Account: URKSOP URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GSS152-BS	SS003080.D	1	06/25/12	FI	n/a	n/a	GSS152

The QC reported here applies to the following samples:

Method: RSKSOP-147/175

TC11103-1, TC11103-2, TC11103-3, TC11103-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	23.4	109	70-130
74-85-1	Ethene	57.4	71.7	125	70-130
74-84-0	Ethane	43.3	47.1	109	70-130

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: TC11103  
 Account: URKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC10967-3MS	SS003086.D	1	06/25/12	FI	n/a	n/a	GSS152
TC10967-3	SS003085.D	1	06/25/12	FI	n/a	n/a	GSS152

The QC reported here applies to the following samples:

Method: RSKSOP-147/175

TC11103-1, TC11103-2, TC11103-3, TC11103-4

CAS No.	Compound	TC10967-3 ug/l	Spike Q ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	7.15	21.5	27.2	93	60-140
74-85-1	Ethene	ND	57.4	62.4	109	60-140
74-84-0	Ethane	ND	43.3	43.5	101	60-140

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: TC11103  
 Account: URKSOP URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC10967-2DUP	SS003084.D	1	06/25/12	FI	n/a	n/a	GSS152
TC10967-2	SS003083.D	1	06/25/12	FI	n/a	n/a	GSS152

The QC reported here applies to the following samples:

Method: RSKSOP-147/175

TC11103-1, TC11103-2, TC11103-3, TC11103-4

CAS No.	Compound	TC10967-2		Q	RPD	Limits
		ug/l	DUP ug/l			
74-82-8	Methane	4.59	4.07		12	30
74-85-1	Ethene	ND	ND		nc	30
74-84-0	Ethane	ND	ND		nc	30

\* = Outside of Control Limits.

## Metals Analysis

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## QC Data Summaries

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**Includes the following where applicable:**

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: TC11103  
Account: URKSOP - URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

QC Batch ID: MP18001  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 06/25/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	8.3	12		
Antimony	5.0	1	1		
Arsenic	5.0	1.7	1		
Barium	200	.97	3.4		
Beryllium	4.0	.056	.16		
Boron	100	1.4	7.8		
Cadmium	4.0	.11	.09		
Calcium	5000	7.4	25		
Chromium	10	.23	.27		
Cobalt	50	.15	.22		
Copper	20	1.1	5.9		
Iron	100	1.1	23	9.5	<100
Lead	3.0	1	1.8		
Lithium	300	2	2		
Magnesium	5000	7.7	7.9		
Manganese	15	.054	1.9	0.35	<15
Molybdenum	10	.39	.2		
Nickel	40	.69	1.4		
Potassium	5000	39	45		
Selenium	5.0	1.5	.98		
Silver	10	1.2	.24		
Sodium	5000	9.2	100		
Strontium	10	.061	.4		
Thallium	10	.67	1.2		
Tin	20	.69	2.8		
Titanium	20	.29	.3		
Vanadium	50	.3	.3		
Zinc	20	.51	3.5		

Associated samples MP18001: TC11103-1F, TC11103-2F, TC11103-3F, TC11103-4F

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

7.1.1  
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC11103  
 Account: URKSOP - URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

QC Batch ID: MP18001  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 06/25/12

Metal	TC11137-1F Original MS	SpikeLot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron	1140	51500	50000	100.7 75-125
Lead	anr			
Lithium				
Magnesium				
Manganese	169	585	400	104.0 75-125
Molybdenum				
Nickel				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP18001: TC11103-1F, TC11103-2F, TC11103-3F, TC11103-4F

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

7.1.2  
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: TC11103  
 Account: URKSOP - URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

QC Batch ID: MP18001  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 06/25/12

Metal	TC11137-1F Original MSD	SpikeLot MPTW4	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper						
Iron	1140	51400	50000	100.5	0.2	20
Lead	anr					
Lithium						
Magnesium						
Manganese	169	585	400	104.0	0.0	20
Molybdenum						
Nickel						
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP18001: TC11103-1F, TC11103-2F, TC11103-3F, TC11103-4F

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

7.1.2  
7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: TC11103  
 Account: URKSOP - URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

QC Batch ID: MP18001  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 06/25/12

Metal	BSP Result	SpikeLot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron	51100	50000	102.2	80-120
Lead	anr			
Lithium				
Magnesium				
Manganese	436	400	109.0	80-120
Molybdenum				
Nickel				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP18001: TC11103-1F, TC11103-2F, TC11103-3F, TC11103-4F

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

7.1.3  
7

SERIAL DILUTION RESULTS SUMMARY

Login Number: TC11103  
 Account: URKSOP - URS Corporation  
 Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

QC Batch ID: MP18001  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 06/25/12

Metal	TC11137-1F Original SDL 1:5	%DIF	QC Limits
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Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Boron			
Cadmium	anr		
Calcium			
Chromium	anr		
Cobalt			
Copper			
Iron	1140	1190	5.0 0-10
Lead	anr		
Lithium			
Magnesium			
Manganese	169	173	2.5 0-10
Molybdenum			
Nickel			
Potassium			
Selenium	anr		
Silver	anr		
Sodium			
Strontium			
Thallium			
Tin			
Titanium			
Vanadium			
Zinc			

Associated samples MP18001: TC11103-1F, TC11103-2F, TC11103-3F, TC11103-4F

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

7.1.4  
7

## General Chemistry

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### QC Data Summaries

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#### Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: TC11103  
Account: URSKSOP - URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO3	GN43189	5.0	0.0	mg/l	100	93.0	93.0	80-120%
Chloride	GP19744/GN43123	0.50	0.0	mg/l	10	10.6	106.0	90-110%
Nitrogen, Nitrate	GP19696/GN43049	0.50	0.0	mg/l	10	9.40	94.0	90-110%
Nitrogen, Nitrate + Nitrite	GP19759/GN43145	0.10	0.0	mg/l	1	0.985	98.5	90-110%
Nitrogen, Nitrite	GP19696/GN43049	0.50	0.0	mg/l	10	9.81	98.1	90-110%
Sulfate	GP19744/GN43123	0.50	0.0	mg/l	10	10.2	102.0	90-110%
Sulfide	GN43029	0.20	0.0	mg/l	1600	1560	97.5	80-120%
Total Organic Carbon	GP19713/GN43072	1.0	0.0	mg/l	25	23.6	94.4	80-120%

Associated Samples:

Batch GN43029: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GN43189: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19696: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19713: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19744: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19759: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 (\*) Outside of QC limits



DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: TC11103  
Account: URSKSOP - URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN43189	TC10984-1	mg/l	390	395	1.3	0-10%
Chloride	GP19744/GN43123	TC10984-1	mg/l	278	279	0.4	0-20%
Nitrogen, Nitrate	GP19696/GN43049	TC11086-2	mg/l	0.0	0.0	0.0	0-20%
Nitrogen, Nitrate + Nitrite	GP19759/GN43145	TC11103-1	mg/l	0.0	0.0	0.0	0-20%
Nitrogen, Nitrite	GP19696/GN43049	TC11086-2	mg/l	0.0	0.0	0.0	0-20%
Sulfate	GP19744/GN43123	TC10984-1	mg/l	254	252	0.8	0-20%
Sulfide	GN43029	TC10984-1	mg/l	0.0	0.0	0.0	0-20%
Total Organic Carbon	GP19713/GN43072	TC11029-1	mg/l	4.6	4.4	4.4	0-20%

Associated Samples:

Batch GN43029: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GN43189: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19696: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19713: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19744: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 Batch GP19759: TC11103-1, TC11103-2, TC11103-3, TC11103-4  
 (\*) Outside of QC limits

8.2

8

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: TC11103  
Account: URKSOP - URS Corporation  
Project: UTC-Metzler/ 3200 Main St. Keokuk, IA

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN43189	TC10984-1	mg/l	390	25	410	80.0	79-122%
Chloride	GP19744/GN43123	TC10984-1	mg/l	278	500	791	102.6	80-120%
Nitrogen, Nitrate	GP19696/GN43049	TC11086-2	mg/l	0.0	10	9.0	90.0	80-120%
Nitrogen, Nitrate + Nitrite	GP19759/GN43145	TC11103-1	mg/l	0.0	1	0.95	95.0	90-110%
Nitrogen, Nitrite	GP19696/GN43049	TC11086-2	mg/l	0.0	10	9.3	93.0	80-120%
Sulfate	GP19744/GN43123	TC10984-1	mg/l	254	500	770	103.2	80-120%
Total Organic Carbon	GP19713/GN43072	TC11029-1	mg/l	4.6	25	26.4	87.2	75-125%

Associated Samples:

Batch GN43189: TC11103-1, TC11103-2, TC11103-3, TC11103-4

Batch GP19696: TC11103-1, TC11103-2, TC11103-3, TC11103-4

Batch GP19713: TC11103-1, TC11103-2, TC11103-3, TC11103-4

Batch GP19744: TC11103-1, TC11103-2, TC11103-3, TC11103-4

Batch GP19759: TC11103-1, TC11103-2, TC11103-3, TC11103-4

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

